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NEWS LETTER

Vol. 05

2018.10

The topic of the October's newsletter is on the symbol of advanced technology of the 1980s, the 'computer'. Read on to find out about the history of Samsung Electronics' computer, which began with Korea's first 8-bit computer in 1983, and see how computers have changed society.

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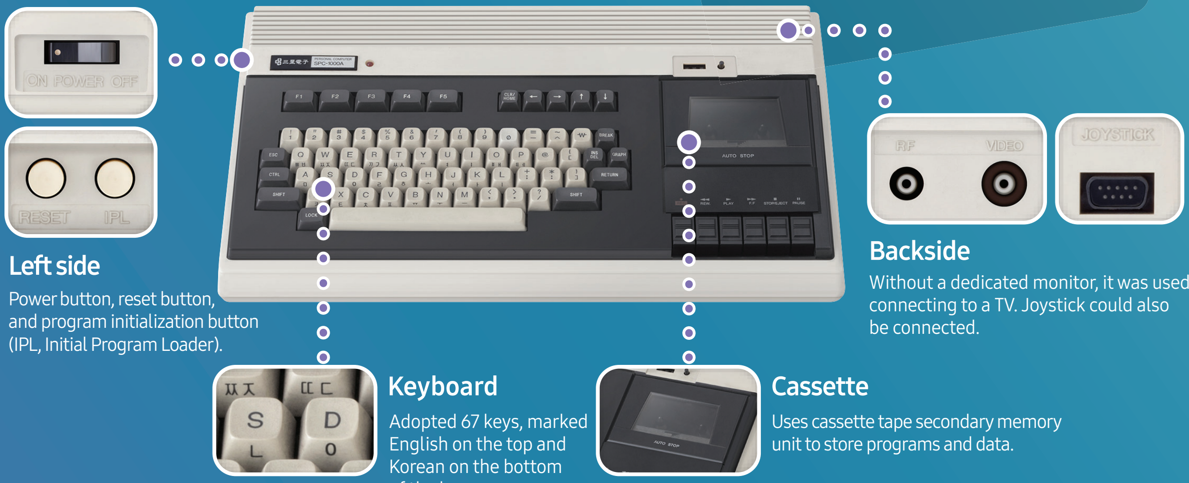
'Computer'

Symbol of Advanced Technology of the 1980s

1983

Samsung's first desktop computer

PersCom(SPC-100)



Left side

Power button, reset button, and program initialization button (IPL, Initial Program Loader).

Backside

Without a dedicated monitor, it was used by connecting to a TV. Joystick could also be connected.

Keyboard

Adopted 67 keys, marked English on the top and Korean on the bottom of the key.

Cassette

Uses cassette tape secondary memory unit to store programs and data.

In 1985, Samsung Semiconductor & Telecommunications predicted how the future would change with advanced technology as shown in the advertisement on the right. Computers replacing simple tasks, computers with artificial brains automating society, and communication networks allowing people around the world to live like neighbors... It was the computer that symbolized the cutting-edge technology that would complete this future. The future that was predicted in the advertisement 33 years ago became reality and those children in 1985 grew up and now are living in a cutting-edge IT world.

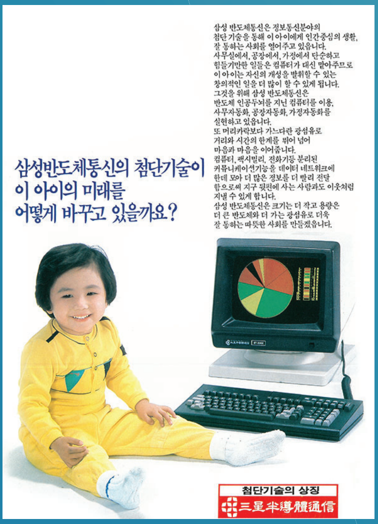
The history of Samsung Electronics' computers begins with the 'PersCom(SPC-1000) desktop,' released in 1983. At the time, the first self-developed 8-bit personal computer was distributed to schools across Korea for education purposes. In 1984, Korea's first 16-bit mid-to-large microcomputer 'SSM-16' was released. This model, which was distributed to public institutions and companies, was also exported to Europe and the Middle East as 16 people could access and use it simultaneously. Likewise, products distributed for education and office use in all areas of society pioneered the computer market both inside and outside of the country in the 1980s.

The first portable laptop computer was released in 1988. The S-5200, which had a higher performance than a desktop and was half its weight, was exported to overseas markets in large quantities.

In the 1990s, Samsung Electronics' computers started to pursue technological innovation. The green computer launched in 1993 gained great popularity with the Power Management System (PMS) function that saves power by automatically shutting down the monitor when the computer is not in use. This computer also won the Presidential Award on the Invention Day in May 1994. The Magic Station series, which was first released in 1994 and had gain great popularity until 2011, was a multimedia computer with built-in sound card, CD-ROM drive, TV receiver card and communication modem. In particular, the Magic Station III released in 1996 is recognized as the product that introduced Windows 95 and Intel Pentium microprocessors to Korea.

The first model of the "Sense" series, which was another term for notebook computers, was released in 1995. It was an ultra-thin notebook computer with a thickness of 47.5mm (which was significantly thin at the time). 'Sense 600', released the following year, was even more portable by reducing the weight even with the MMX Pentium 233MHz CPU mounted on a large 13.3-inch screen. With this product, Samsung Electronics was able to secure an advantage in the domestic high-performance notebook market. 'Sense Q760', launched in 2002, is a unique notebook with a separate dock station. It was possible to attach a CD drive or a floppy disk drive to the dock station. The unique design dramatically reduced the thickness of the laptop, and won the Presidential Award at the 2001 Excellent Industrial Design Product Selection. Samsung Electronics Computer has maintained its No. 1 rank for home desktops since 1993 and for laptops since its first release in 1990, we look forward to its next move.

Samsung Semiconductor & Telecommunications is opening up a human-centered life and a well-connected society for this child through cutting-edge technology in Information and Communications Technology. In the office, in the factory and at home, the computer takes over the simple and daunting tasks, so the child can do more creative work that demonstrate his personality. To this end, Samsung Semiconductor & Telecommunications is conducting office automation, factory automation and home automation by using a computer with a semiconductor artificial brain.
In addition, optical fibers, which are thinner than hair, go beyond the limits of time and distance and connect one mind to another mind.
The separate communication functions of computers, fax machines and telephones are assembled in a data network to deliver more information faster, allowing people communicate like neighbors with those living on the other side of the earth.
Samsung Semiconductor & Telecommunications will create a warmer society that communicates better with smaller sized semiconductors and thinner optical fibers.



삼성반도체통신의 첨단기술이
이 아이의 미래를
어떻게 바꾸고 있을까요?

삼성 반도체통신은 정보통신분야의
첨단 기술을 통해 이 아이에게 인간중심의 생활,
잘 통하는 사회를 열어주고 있읍니다.
사무실에서, 공장에서, 가정에서 단순하고
힘들기만한 일들은 컴퓨터가 대신 맡아주므로
이 아이는 자신의 개성을 발휘할 수 있는
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마음과 마음을 이어줍니다.
컴퓨터, 팩시밀리, 전화기등 분리된
커뮤니케이션기능을 데이터 네트워크에
한데 모아 더 많은 정보를 더 빨리 전달
함으로써 지구 뒷편에 사는 사람과도 이웃처럼
지낼 수 있게 합니다.
삼성 반도체통신은 크기는 더 작고 용량은
더 큰 반도체와 더 가는 광섬유로 더욱
잘 통하는 따뜻한 사회를 만들겠읍니다.

첨단기술의 상징
三星半導體通信

1985 Samsung Electronics Advertisement Image

1984

SSM-16

Korea's first 16-bit microcomputer developed jointly by Samsung Semiconductor & Telecommunications and Korea Institute of Electronics Technology. Up to 16 people can use it simultaneously. It was popular in Europe and the Middle East as it had excellent compatibility with various devices.

1988

S-5200

Portable laptop computer that was exported in large quantities to overseas markets. Processing speed 12MHz, memory capacity 1MB (expandable to 4MB), 32MB HDD, 1.4MB FDD installed. Compared to the desktop at the time, the performance was better and the weight about 5kg, half of the weight.

1993

SPC-7200, Green Computer

Ultra-power-saving, low-noise green computer that reduces power consumption by 47% and noise by 50% compared to existing products. First to apply the power management system function to reduce power consumption by automatically shutting down the monitor when not in use.

1996

SPC-8260P, Magic Station III

The 3rd generation model of the multimedia PC Magic Station with built-in sound card, CD-ROM drive, TV receiving card and communication modem. It is a product that introduced Windows 95 and Intel Pentium microprocessor to Korea.

1997

SENS 600

A 13.3-inch XGA high-performance multimedia notebook with significantly improved screen size and resolution than previous laptops. In addition to its high performance, it is lightweight and easily portable; it was superior in the domestic high-performance laptop market.

2002

SENS Q760

As the first laptop computer with a media dock station, it became a basic design for laptop computers today. CD drive, floppy disk drive, hard disk drive and such could be attached to the dock station.

Power of 'Collective Intelligence'

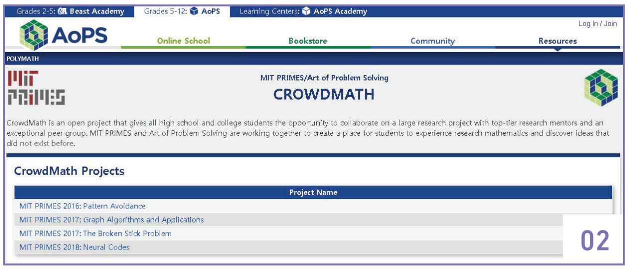
With the advancement of computers, human life has continued to innovate. Digital circuits replaced analog circuits, and unprecedented devices were created to easily obtain processed information and store memory. At the heart of this change is the 'Internet', which connects numerous computers. The Internet is an open virtual space where anyone can communicate and share information. Information is naturally accumulated in the process of cooperating or competing among multiple people, and this information becomes knowledge that can be used. This is called 'Collective Intelligence.'

In fact, collective intelligence is a phenomenon that has existed even in the past when there was no Internet. The concept of collective intelligence was first used when Harvard professor and entomologist, William Morton Wheeler, described the behavior of ants in 1910. But today, as the Internet has become a part of life, collective intelligence is showing its power. This is because the Internet makes communication between people unprecedentedly quick and easy, and can produce optimal results in a short time.

The most familiar example of collective intelligence is 'Wikipedia'. Wikipedia is an online encyclopedia that expands in real time, allowing anyone to write or edit content on any object or topic. This method of operation is based on the belief that the more people participate, the errors in information are naturally corrected and thus increases its credibility. The knowledge search service of Korean web portal is a similar example. However, it may be naive to think that the initial misinformation would be corrected through the hands of many people. Much of the information contained in Wikipedia is written based on biased personal perspectives rather than objective indicators. The problem lies in the rapid spread of this incomplete information over the Internet. The same goes for distribution of false information in various communities as if it were true. Its side effect is that sometimes it emerges as a social issue.

01

However, remarkable achievements have been produced using 'collective intelligence' in every social field. In 2016, Massachusetts Institute of Technology (MIT) opened a collective intelligence site called 'CrowdMath'. It is a place where high school and college students exchange opinions and receive mentoring from incumbent mathematicians while solving difficult math problems together. 'CrowdMath' is evaluated as opening a new era of mathematics research by solving mathematics problems that are recognized as research achievements and published on online thesis websites.



MIT PRIMES/Art of Problem Solving

CROWDMATH

CrowdMath is an open project that gives all high school and college students the opportunity to collaborate on a large research project with top-tier research mentors and an exceptional peer group. MIT PRIMES and Art of Problem Solving are working together to create a place for students to experience research mathematics and discover ideas that did not exist before.

CrowdMath Projects

Project Name
MIT PRIMES 2016: Pattern Avoidance
MIT PRIMES 2017: Graph Algorithms and Applications
MIT PRIMES 2017: The Broken Stick Problem
MIT PRIMES 2018: Neural Codes

02

In 2018, a joint research team from Massachusetts Institute of Technology (MIT) and California Institute of Technology (CALTECH) announced to the American Astronomical Society that they had discovered an extra-terrestrial planetary system called 'K2-138.' 'K2-138' has five planets orbiting around the star called "Aquarius", 620 light years away from Earth. In this study, as 10,000 citizen scientists participated in the data analysis of the space telescope, it became a viral topic.

Samsung Electronics also launched a collective intelligence platform in 2014 that gathers employees' ideas for the development of new and useful products. All 300,000 employees are free to share their ideas, and among them, they collect knowledge to execute the outstanding ideas.

The power of collective intelligence is expected to increase in the future with advanced technology. We look forward to how the side effects will be resolved and how society will change.

01 Wikipedia (Source: Wikipedia)
02 MIT CrowdMath (artofproblemsolving.com/polymath)

Invention of Computer Games

Today, we cannot imagine a day without computers as we use computers for variety of purposes in all parts of society. Computers were originally developed for military purposes and numerous factors were contributed to diversify the use of computers. Among them, computer games are considered as one of the key factors that led the functional development of computers and the spread of computers from the research field to households. Computers and games have developed in complement to each other till today. Let's go back to the time when the first computer game was developed.

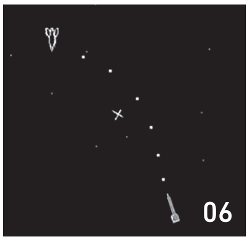
03

The first computer game was 'Tennis for Two', developed in 1958. The game was operated by an analogue computer equipped with an oscilloscope (a device that visualises the vibration phenomenon) and two controllers. It was a simple game where two players exchanged a tennis ball represented by a dot on the screen. Since computers were mainly used for military purposes, very few people were able to play this game at the time, but those who have experienced it once said it was fun enough to fall in love with the game. The developer of the game is physicist, Willy Higgingbotham. During World War II, , he was one of many scientists who participated in the Manhattan Project (1942-1946) in the United States, which was a top secret plan to manufacture an atomic bomb. Scientists who participated with him could not imagine that the atomic bombs they studied would actually be used, but the U.S. government dropped them on Hiroshima and Nagasaki in Japan in 1945. It was enough to shock not only the world, but also the scientists who were involved in the Manhattan Project. Since then, most of the participated scientists, including Willie Higgingboderm, became skeptical of their research and worked towards the peaceful use for nuclear energy. The tennis game was developed with the aim of promote that computers developed for military use could also be used for games. However, in addition to the Cold War, the launch of the Soviet satellite, Sputnik, in 1957 led to the forcement of computers to return to their original military purpose.

With the spread of second-generation computers developed by transistors replacing vacuum tubes, the complementary development of computer games and computers began. It wasn't until the mid-1950s that relatively inexpensive, small computers with transistors spread to research institutes and universities. In 1956, a game called "Mouse Trap" was developed at the Lincoln Institute at Massachusetts Institute of Technology (MIT). It was a game which the user draws a maze with a light pen and draws cheese as a dot, and the computer moves the mouse to find the cheese. Later, Douglas Engelbart, inspired by this light pen, developed the first mouse in 1964 and released it to the public in 1968.

04

05


06

The game "Spacewar," developed in 1962, was also developed by researchers who could do some programming, including Steve Russell of MIT. It is a two-player game where you shoot the opponent's spaceship. The game was installed on computers that were sold to universities and research institutes at the time, and became popular among researchers. When the programming source for this game was released, researchers used it to transform the game. Through this, a culture of making your own software began to sprout. One of the game's users, Nolan Bushnell, founded 'Atari' with $500 in 1972 and remodeled 'Spacewar' to release the first commercial game, 'Computer Space'. This was the first time that computer games entered the realm of business, and today Nolan Bushnell is called the "father of computer games."

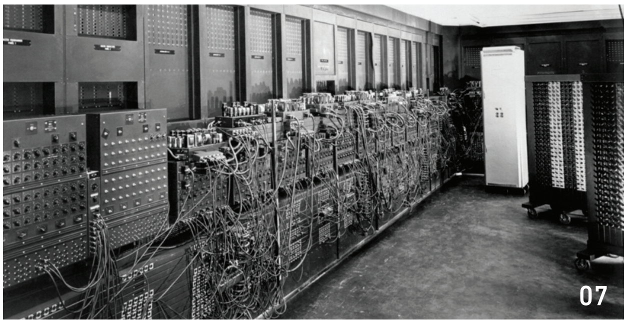
03 Tennis Game (Source: Wikipedia)
04 First Computer Mouse (Source: Wikipedia)
05 Steve Russell operating a computer (Source: Wikipedia)
06 Spacewar Game (Source: Wikipedia)

HISTORY

Development of Computers

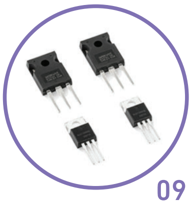
In modern society, the 'computer' is an essential device that moves society. Computer originated from the Latin word 'Computare', meaning 'to calculate', and in the early days it described a computing device, such as an abacus, calculator, or a calculating person. But these days, it is used for all kinds of data processing in many parts society. The portable computer, weighing less than 500g, has various functions and is even equipped with artificial intelligence. The first computer, ENIAC, on the other hand, was a vacuum tube computer that filled a room and made relatively simple calculations. Computers have gradually improved in performance to today. Let's divide them into 5 steps and look at each development.

The first-generation computer is a vacuum tube computer. ENIAC was developed in 1946 and was used by the U.S. Department of Defense to calculate missile trajectories, predict weather, develop atomic bombs and more. ENIAC's calculation speed is 5,000 times per second, which is 200,000 times faster than human calculation. The vacuum tube computer had a volume of about 30 tons, so it generated a lot of heat and consumed a lot of power, so the cooling system had to be improved. After much research, the suggested method of improvement was to replace vacuum tubes with semiconductor devices such as transistors and diodes. This resulted in the second-generation of computers. Compared to the first-generation, computers that evolved to the second-generation reduced in volume and power consumption, and significantly improved computation speed.


07

The third-generation computer emerged as integrated circuits (IC) replaced transistors. Computers have become smaller and more affordable thanks to microscopic integrated circuits in which many electronic components are combined on a single circuit board. The era of the third-generation computer began with the spread of commercial multipurpose computers equipped with operating systems that could run various software and manage tasks with increased memory capacity.

08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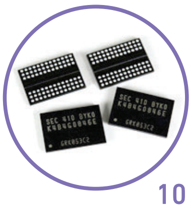
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Fourth-generation computers, which have been used from the 1970s to the present, are characterized for using integrated millions of electronic circuit elements, LSI (Large Scale Integration) and VLSI (Very Large Scale). This led to the development of the single chip central processing unit, a microprocessor, which enables mass production of personal computers. Furthermore, it led to the development of portable computers such as laptops, tablets and smartphones.

The fifth-generation, which is currently under development, is a computer with artificial intelligence (AI) that can think for itself. It is characterized by innovative functions such as human-like conversation, problem solving and reasoning using accumulated data. Recently, news was reported that an unmanned convenience store equipped with a smart system was first introduced in Korea. As population decreases due to the low birth rate and aging, efforts to reduce social costs using advanced technology are taking place everywhere in society. In addition, with the development of intelligent robots, self-driving cars and unmanned aircrafts, the possibility of using artificial intelligence in dangerous areas where human access is difficult, is gaining attention. The fifth-generation computer is now innovating by incorporating advanced technologies. We look forward to seeing what kind of amazing world will be created in the future.

07 First computer, ENIAC
08 Vacuum Tube (Source: Samsung Semiconductor Story)
09 Transistor (Source: Samsung Semiconductor Story)
10 Integrated Circuit (Source: Samsung Semiconductor Story)

New Historical Collection

1973 Black and White Transistor TV,

「Samsung-Sanyo TV」

In August, Samsung-Sanyo TV (SS-T440(L)), which was produced about 45 years ago, arrived at S/I/M. This product was produced four years after the launch of Samsung Electronics, and after signing a capital and technology agreement with Sanyo Electric of Japan in 1969. It is a valuable TV that represents the early history of Samsung Electronics.
It was the donor's child who first contacted S/I/M for the donation. The father, the donor of the TV, had decided to buy the TV because he felt bad for his then preschool child, who often went to the neighbors to watch TV.
In the 1960s, TVs that were first introduced to Korea were so expensive that they were luxury items that could only be bought by wealthy families. Later, in the 1970s, it began to gradually spread to middle-class households and when color broadcasting began in the 1980s, the distribution rate reached 80%.

By listening to the donor's story, it was possible to understand the typical common households buying TVs in the 1970s, the time when TV was popularized.
The Samsung-Sanyo TV that travelled 200km from Gimcheon-si, Gyeongsangbuk-do and moved to the storage of S/I/M, will be permanently preserved after undergoing a restoration process, and will be used for research or exhibition purposes. We would like to express our gratitude once again to the donor Sang-do Gu for the donating an collection containing valuable family history that will serve for the research of Samsung Electronics' early history and Korea's economic development.

Samsung-Sanyo TV(SS-T440(L))

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Hours of Operation

Weekdays / 10a.m. ~ 6p.m. (Reservations Only)
Saturday / 9a.m. ~ 5p.m. (Last admission at 4:30p.m.)
Holidays / Sundays, National and other holidays, December 31st

Admission Information

Weekdays / Reservation is required (Docent Tour)
Saturday / No reservation is required (Self-guided tour)

Admission Fee

Free

Visitors

Recommended age of visitor is 13 above
(Middle school or higher education)

※ Elementary school students and younger children must be accompanied by an adult (1 adult for every 2 children)

How to Make a Reservation

Make reservation via website / www.samsunginnovationmuseum.com

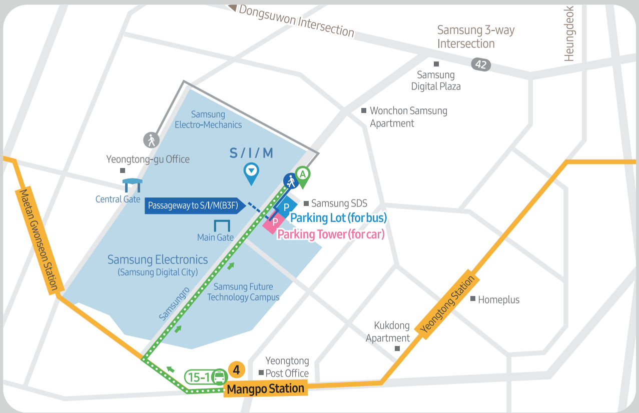
Contact Information

Phone / +82-031-200-3113
E-mail / sim.sec@samsung.com

Directions

Address / 129 Samsung-ro, Yeongtong-gu, Suwon-si,
Gyeonggi-do, South Korea

Parking / 031-200-0200



Public Transportation /

Take bus no. 15-1(regular bus) at Exit 4 of Mango Station (Bundang Line)
→ (5 stops) Get down at 'Samsung Digital City P.R. Centre' station
and walk for 2 min towards the S/I/M Parking Tower

Driving /

Enter the expressway from Suwon Singal IC or Heungdeok IC →
Turn left towards 'Samsung Digital City' at the Samsung three-way intersections →
Make a U-turn at the 'Samsung Digital City Main Gate' intersection →
Drive 250 meters and enter S/I/M Parking Tower on the right →
Use S/I/M reserved parking area on the 3rd basement floor(B3)
※ Navigation Keyword: Samsung Innovation Museum, SIM

S/I/M NEWS LETTER

Publication / Samsung Innovation Museum
Editorial / Samsung Innovation Museum
Printing / Youngeun Printing Co., Ltd.
Address / 129 Samsung-ro, Yeongtong-gu, Suwon-si,
Gyeonggi-do, South Korea